

V. REMARKS

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by Minkus et al. (U.S. Patent No. 5,460,617). The rejection is respectfully traversed.

Comparing the present Invention with the invention by Minkus, there is a difference in interval between the ring members 12 and 13 (the present invention), and the members 34 and 48 of Minkus. Namely, the ring members 12 and 13 of the present invention are set closer together than are the members 34 and 48 in the invention by Minkus. The members 34 and 48 are set wider away to each other.

This difference brings about a further difference in action and effect. That is, according to the present invention, immediately after a plunger is inserted into the syringe barrel from the rear thereof, all of the outer circumferential surfaces of the ring member 12 and the ring member 13, and the outer circumferential surfaces of vane members 14 abut on the inner surface the syringe barrel so that the center axis of the syringe barrel and the center axis of the plunger naturally coincide with each other. Therefore, precise positioning of the plunger can be achieved before the screw portion to be connected to the gasket (see FIG 5) is performed. As a result, according to the present invention, it is possible to mount the gasket on the tip of the plunger always in a correct state.

On the contrary, in the invention by Minkus, in which when the plunger is inserted into the syringe barrel from the rear thereof, the member 48 is left protruding from the rear of the syringe barrel. This situation is shown in Fig. 1 in Minkus. It is obvious that the member 48 in Minkus is of no use in correctly mounting the gasket at the tip of the plunger. It is originally not assumed in Minkus, where the piston 26 is mounted at the tip of the plunger 12 beforehand, to achieve the object of the present invention that the center axis of a syringe barrel and the center axis of a plunger are made to coincide with each other so that a gasket can be mounted on a screw portion at the tip of the plunger. In a correct position when the plunger is inserted in the syringe barrel from the rear thereof, it should be noted that in Figs. 2 and 3 in Minkus, the outer circumferential surface of the member 48 abuts on the inner surface of the syringe barrel, but these Figs 2 and 3 do not show a state before the gasket is mounted at the tip of the plunger.

Claim 1 is directed to a plunger for a syringe used for supporting and moving a gasket inserted in a syringe barrel and includes a screw portion, a flange, a first

ring member, a second ring member, a rib and a plurality of main members. Claim 1 recites that the screw portion is formed at a tip thereof for mounting the gasket and the flange is provided at an end of the plunger. Claim 1 also recites that the first ring member and the second ring member are arranged at an interval from each other at a rear of the screw portion around a center axis of the plunger, the rib is provided between the first ring member and the flange and the plurality of vane members are provided between the first and second ring members and arranged radially from the center axis of the plunger. Further, claim 1 recites that outer diameters of the first and second in ring members and the plurality of vane members are equal to or slightly smaller than an inner diameter of the syringe barrel. Claim 1 also recites that, when the plunger is inserted in the syringe barrel in a state immediately before the screw portion is mounted to the gasket, respective ones of outer surfaces of the first ring member, the second ring member and the plurality of vane members abut on an inner surface of the syringe barrel.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended. Specifically, the applied art fails to teach that, when the plunger is inserted in the syringe barrel in a state immediately before the screw portion is mounted to the gasket, respective ones of outer surfaces of the first ring member, the second ring member and the plurality of vane members abut on an inner surface of the syringe barrel. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claim 2 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 2 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(e) as anticipated by Kimber (U.S. Patent No. 6,068,614). The rejection is respectfully traversed.

In Kimber, the stopper 3 is mounted at the tip of the rod 28 beforehand, similarly to that in Minkus. Also, it is not disclosed in Kimber that all of the outer circumferential surfaces of the ring members 12 and 13, and the outer circumferential surfaces of the vane members 14 abut on the inner surface of the syringe barrel in a state before the screw portion is connected to the gasket.

Originally in Kimber, the outer diameters of discs 32 and 33 are larger than the inner diameter of the collar 30, and in the Invention by Kimber, a plunger is not intended to be inserted into a syringe barrel from the rear thereof to connect the tip of the plunger to the gasket in a state such that only the gasket exists in the syringe barrel. Moreover, it is obvious that the rib in Kimber is small in outer diameter and does not abut on the inner surface of the syringe barrel.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended. Specifically, the applied art fails to teach that, when the plunger is inserted in the syringe barrel in a state immediately before the screw portion is mounted to the gasket, respective ones of outer surfaces of the first ring member, the second ring member and the plurality of vane members abut on an inner surface of the syringe barrel. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2 and 4 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(e) as anticipated by Hirshman (U.S. Patent No. 6,042,565). The rejection is respectfully traversed.

Also, it is not disclosed in Hirshman that in a state before the screw portion is connected to the gasket, all of the outer circumferential surfaces of the ring members 12 and 13, and the outer circumferential surfaces of the vane members 14 abut on the inner surface of the syringe barrel, so that positioning of the plunger is performed correctly.

Hirshman takes a structure to insert the contact surface 35 into the tip (base 40) of the plunger extension 100. Accordingly, it is obvious in Hirshman that the contact surface 35 is mounted on the tip (base 40) the plunger extension 100 in advance (before the plunger extension 100 is inserted into the syringe 10) and then, the plunger extension 100 is inserted into the syringe 10.

There is no screw portion pointed out by the examiner in the disclosure by Hirshman.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended. Specifically, the applied art

fails to teach that, when the plunger is inserted in the syringe barrel in a state immediately before the screw portion is mounted to the gasket, respective ones of outer surfaces of the first ring member, the second ring member and the plurality of vane members abut on an inner surface of the syringe barrel. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2 and 4 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by Shanley et al. (U.S. Patent No. 5,685,864). The rejection is respectfully traversed.

It is not disclosed in Shanley also that in a state before the screw portion is connected to the gasket, all of the outer circumferential surfaces of the ring members 12 and 13, and the outer circumferential surfaces of the vane members 14 abut on the inner surface of the syringe barrel so that the positioning of the plunger is performed correctly.

Shanley also takes a structure to insert a seal 3 into a plunger head 2, similarly to that in Hirshman. In the case of Shanley, insertion of the seal 3 into the plunger head 2 is supposed to have been performed before the plunger is inserted into the syringe.

Also, the screw portion mentioned by the Examiner cannot be found in Shanley.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended. Specifically, the applied art fails to teach that, when the plunger is inserted in the syringe barrel in a state immediately before the screw portion is mounted to the gasket, respective ones of outer surfaces of the first ring member, the second ring member and the plurality of vane members abut on an inner surface of the syringe barrel. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claim 2 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 2 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claim 3 is rejected under 35 U.S.C. 102 (b) for 102 (e) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious over Minkus or Grimard or Hirschman. The rejection is respectfully traversed.

Claim 3 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 3 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

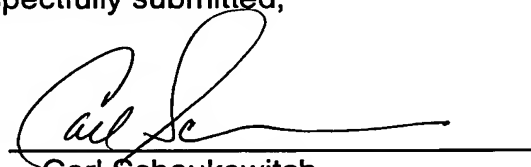
In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

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Enclosure(s): Petition for Extension of Time (one month)
 Information Disclosure Statement
 Form PTO/SB/08A
 Six (6) cited references

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